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SUMMARY

A random sample of homemakers in West Virginia was asked a series of questions regarding their attitudes toward uses of fresh apples. Contingency chi-square tests of independence were used to determine whether any of the responses were dependent on income level.

Slightly less than one-third of the sample indicated that their purchases of fresh apples are distributed equally throughout the year. Twenty-five per cent of the respondents were unable to name the variety of apple preferred by the family. The most common package types purchased were clear plastic bags and baskets or boxes. However, plastic bags and loose apples are the most preferred package types for convenience.

Per capita consumption of fresh apples ranged from zero to over 100 pounds. Over half the sample consumed 30 pounds or less per year. The majority of the respondents indicated that their use of fresh apples for desserts, applesauce, preservation, and eating fresh has remained constant over the last 10 years. Of those who decreased their use of fresh apples, the number in the low income category was larger and the number in the high income category was smaller than would be expected by chance. A large per cent of fresh apple purchases were used for eating fresh as opposed to the other uses mentioned above.

Apples and bananas were the most frequently mentioned fruit selections in 11 situations presented. There was a general tendency for apples to be mentioned proportionately fewer times by low income respondents than high income respondents, while the reverse was true for bananas. In general, a medium, crisp, fine-textured apple was preferred by all income categories. However, an unusually large number of low income respondents reported that they like a soft, mealy apple.

Fresh Apple Utilization As Related to Income

ROBERT L. JACK and KATHLEEN BRAIN

Per capita consumption of fresh apples in the United States decreased from 74 pounds in 1912 to 15 pounds in 1969. The average annual rate of decline during this period was over one pound per capita. Although recent data indicate a slower rate of decline in per capita consumption, commercial producers are still concerned about the future of the fresh apple market. As a result of this concern the following questions are being asked:

1. What is responsible for the large decrease in per capita consumption of fresh apples?
2. What can be done to reverse this downward trend in per capita consumption of fresh apples?

Purpose of This Study

Little has been published on the socio-economic characteristics of fresh apple consumers. Most previous studies have lacked the necessary detail to give the industry sufficient guidelines for assessing the causes and developing a program to reverse the downward trend in per capita consumption.

This study was intended, primarily, as an exploratory project which would identify some areas that would be valuable for future research on apple consumption. Secondly, the scope was broadened to obtain enough data so that relationships between socioeconomic variables (income, age, education, place of residency, and family size) and fresh apple utilization could be explored in detail. In this publication only the analysis of relationships between family income and purchase patterns, utilization, and preferences for fresh apples is reported.

Methodology

The 55 counties in West Virginia were divided into three categories on the basis of population density in 1970. "Rural counties" were defined as having 20 or fewer inhabitants per square mile; "urban counties," 100 or more; and "other counties" included those with over 20 but less than 100 inhabitants per square mile.[1] According to this definition there were 9 rural, 15 urban, and 31 othe counties in the State.

To obtain a representative sample, the number of counties surveyed in eac category was proportional to the per cent of State population reported in eac classification. In 1960, 6.5 per cent of the population of West Virginia wa considered rural, 40.5 per cent urban, and 53 per cent rural non-farm. Accordingly, of the 18 counties randomly selected, three were selected from rural counties, five from urban counties, and 10 from other counties, where th "other" category was to correspond to the rural, non-farm classification.

Four starting points were randomly selected in each of the rural and othe counties by using a table of random numbers and a county map. Thre interviews with the homemaker were completed at each starting point in rura counties, making a total of 12 interviews from each county. In the other count classification six interviews were completed at each starting point, making th county total 24 interviews. For the urban counties telephone directories for th urban center in each county were used to randomly select three starting point Twelve homemaker interviews were conducted at each starting point.

The total number of personal interviews with homemakers was 451; 33 i rural counties, 240 in other counties, and 178 in urban counties, whic accounted for 7 per cent, 53 per cent, and 40 per cent of the sample respectively. These interviews were completed during the months of May an June 1972.

Normally a rigorous statistical test is not necessary for identifyin relationships that would provide profitable areas for future research. Therefore the chi-square test for independence was used to identify significant relation ships. For the purpose of this study, tabulated chi-square values having probability of .10 or less were considered to be significant.

CHARACTERISTICS OF SAMPLE

Socioeconomic variables such as age, education, income, occupation, an family size provide a good basis for comparing respondents living in rural, other and urban areas. Later in this study, income will be used as the independen variable in assessing the utilization of fresh apples in West Virginia.

The age distribution of homemakers who responded in personal interview was similar for all three places of residence (Table 1). All places of residency ha the smallest percentage of the homemakers interviewed less than 25 and th largest proportion 55 years of age and over. A smaller percentage of homemakers in the rural and urban areas were in the 34 or less age category than for the total sample. For the 55 and over category, the urban area showed a higher proportion than the total sample. The other area, which includes suburban areas, had the lowest average age. This figure supports the contention that a large proportion of rural and urban population is composed of older people.

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[1] U.S. Dept. of Commerce, Bureau of the Census, *1970 Census of Population: Numbe of Inhabitants, West Virginia* (Washington: U.S. Government Printing Office, May, 1971 p. 14.

[2] Leonard M. Sizer, *Population Changes in West Virginia With Emphasis 1940-196* Agricultural Experiment Station Bulletin 563 (Morgantown: West Virginia University, Ma 1968), p. 29.

Forty-eight per cent of all respondents in the sample reported attendance or graduation from high school as their educational achievement, with very little variation according to place of residence. Only four per cent of the sample had completed some graduate work. The highest proportion completing some graduate work by place of residency was six per cent in urban, three per cent in other and none in rural areas.

More than 65 per cent of the total sample, 78 per cent of rural, 54 per cent of other, and 72 per cent of urban housewives reported annual household incomes of less than $10,000. When income was over $15,000 annually, the other category showed 21 per cent, rural 9 per cent and urban 7 per cent. The higher annual income and lower average age for the other category is consistent with what one would expect. However, the high levels of college education in rural and urban areas were unexpected.

ANALYSIS

The appearance of modern transportation, refrigeration, and self-service super markets have been responsible for changes in the market structure of the fresh apple industry. The combined improvement in transportation and refrigeration has influenced competition by increasing the size of the supply area from which high quality fruit can be obtained for a given market. Controlled atmosphere storage has enabled producers to supply a high quality apple over a greater period of the year and higher incomes have made it possible for housewives to buy out-of-season fruit for family consumption. However, increased participation of homemakers in the labor force may be related to the decline in fresh apple consumption and the increased consumption of apples in processed forms.

Purchases

Of the 427 people interviewed who disclosed their income level, 383 had purchased apples for fresh consumption in the last year (Table 2). Fresh consumption was defined as consumption of the apple in its natural state, exclusive of any type of home preparation. A large portion of those who had not purchased apples were in the low income group and very few were in the high income category. Thus, there was some indication that a relationship exists between income level and apples purchased for fresh consumption during the last year. Many of the 44 respondents who had not purchased apples had consumed apples from their own trees or from other non-monetary cost sources and were able to supply other information concerning utilization and preferences. The top figure in each response category in the table indicates the actual number of homemakers responding, the middle figure indicates the number of expected responses based on the chi-square test, and the bottom figure is the amount of the total chi-square value accounted for by that cell.

When questioned about the season when they purchase the most fresh apples, 129 respondents (31 per cent) in the survey sample said they purchased the same amount each month (Table 3). The fall and winter seasons received 26 and 24 per cent of the total number of responses, respectively. The patterns for each income category were such that the relationship between income and seasonal purchasing habits was not statistically significant.[3]

Income level apparently does not influence the purchasing habits of those who vary their apple purchases monthly. There was general agreement among respondents that they purchase more apples when the price is lower or when apples are in season (Table 4). Other factors cited frequently for variation in apple purchases were variations in appetite, holidays, and depletion of home-grown apples.

With respect to the color of apples they usually buy, over half the respondents indicated they purchased both yellow and red apples. Thirty-two per cent of the respondents buy red apples exclusively, while 10 per cent buy only yellow apples (Table 5).

Red delicious was the most often mentioned variety for eating fresh for al income categories (Table 6). Other varieties mentioned frequently were yellow delicious, staymen, winesap, and grimes golden, in that order. Twenty-five per cent of the respondents to this question could not name the variety of apple they usually eat. Statistically there was no significant relationship between income and variety selected for eating fresh.

Over half of the respondents purchased their apples for fresh consumption at a supermarket (Table 7). In the high income category the frequency of supermarket purchases was larger than would be expected by chance alone while fruit farm purchases were disproportionately low. Statistical evidence in this case suggests dependence between income and location of fresh apple purchases.

Fifty-seven per cent of the respondents indicated the apples they buy for fresh consumption were usually in clear plastic bags (Table 8). Twenty-one per cent of the respondents frequently purchased their apples by the basket or box Loose apples and overwrapped trays, which usually cost more per unit than ntainers holding larger volumes, were mentioned less frequently. No pattern of pendence between income and packaging material was obvious in the ponses to this question.

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[3] People who did not respond to this question (10) or who purchased larger quantities of apples in the spring (7) were not included in the chi-square test, accounting for the difference in Table 2 and Table 3 totals.

After indicating the type of package usually selected in buying apples, the pondents were asked which type package they preferred for convenience. ear plastic bags were preferred by over half the sample (Table 9). Loose apples re preferred by more respondents than overwrapped trays or baskets or boxes. is seems to suggest that the price of loose apples, which is generally higher an prepackaged apples, is a deterrent to their selling ability. The test shows at there was no evidence of a dependent relationship between preferred ckage type and income level.

The most important criteria for choosing packaging were ease in seeing the oduct and convenience of storage (Table 10). Less frequently mentioned isons were adequacy of quantity in the package, economy, good keeping ality, and lack of availability of alternative packaging. There was no cernable dependence between income level and reason for preferring a certain ckage type.

Ninety-one per cent of the respondents indicated that they could usually d fresh apples packaged in the size package preferred (Table 11). Perhaps cause of this, few improvements for packaging were suggested (Table 12). No tistical tests were performed on these data due to the nature of frequency tribution.

Apple purchases did not appear to be associated with a particular brand me. Ninety-two per cent of the respondents indicated that they did not look a specific brand name (Table 13). Four per cent of the respondents gave at they thought was a brand name, but what was actually a variety. The tern was similar for all three income categories.

ferences

A series of fresh apple characteristics including firmness, juiciness, sweet- s, texture, color, and size, was listed and the respondent was queried as to the racteristics preferred. In general, a medium, crisp, fine-textured apple was ferred by all income categories (Tables 14, 15, 16). However, an unusually ge number of low income respondents reported that they liked a soft, mealy le. These characteristics are generally associated with apples which have eived regular as opposed to controlled atmosphere storage over the winter. ice regular storage apples are less costly, they might be more accessible, ce-wise, to low income people. More research would be necessary to ermine the factors associated with this response.

Out of the 429 homemakers who answered the question concerning ciness of apple, all except 15 indicated that they preferred a juicy apple as posed to a dry apple (Table 17). Eleven of those who preferred a dry apple were in the low income category, while only one was in the high inco category. Thus, this is an indication that those who prefer dry apples are m likely to be in low income brackets.

In the random sample taken, the number of people who preferred sw apples was twice that of those who preferred tart apples (Table 18). Of th who preferred tart apples, the responses from the middle income category w lighter than would be expected by chance, thus contributing approximately h of the total tabulated chi-square value. The probability associated with frequencies shown in this table is .098. The region of rejection for this surv was set at .10. Therefore, it was concluded that preference for apple sweetnes not independent of income level.

Over half the people interviewed indicated they preferred a bright or de red apple (Table 19). Next in popularity was an apple having more yellow th red. The proportions in each of the income categories were sufficiently simi that independence could not be rejected.

When the respondents were asked which variety of apple best fit characteristics they · preferred, 150 said it was red delicious (Table 2 Seventy-three respondents could not identify the variety they preferred. L income respondents had a relatively low response to red delicious and relatively high response to grimes golden, although, in absolute terms delicious was listed more frequently than the grimes golden. Of those who co identify the variety they preferred, yellow delicious was the second m popular variety. In the low and high income categories staymen, winesap equally as popular as the golden delicious, but was not reported to have the sa level of popularity in the middle income category. These results indicate t apple variety preference is not dependent on income level.

In a series of questions, respondents were asked which one of seven fr fruits they would serve for various situations presented. In general, apples w the most frequent choice, leading all other fruits listed in 8 of 11 situatio Contingency chi-square tests were performed to test the null hypothesis independence between fruit chosen and level of income. In order to meaningful tabular chi-square values, fruits with very few or no responses w excluded from the test.

Grapefruit was by far the most frequently mentioned fresh fruit wh respondents would serve for breakfast for all income categories (Table 21). the low income group bananas followed grapefruit, and oranges were third popularity. The second and third choices were reversed in the middle and hi income categories, although the difference was not significant at the .10 level.

In general, peaches were the preferred fresh fruit for lunch, followed apples (Table 22). Of those who preferred apples, the middle income respon was rather large, and the high income response was rather small. The c chi-square values in these categories were relatively large suggesting differe reference patterns in the two income categories. Also of note was the number f low income respondents who indicated they would serve pears for lunch, idicative of stronger preference than would be expected by chance alone.

For the evening meal the most commonly mentioned fruit was peaches, llowed by apples and pears (Table 23). This pattern was the same for all three icome categories. From this survey there was no indication of a dependent lationship between income and fresh fruit preference for the evening meal.

The preference pattern for an adult sack lunch was apples, bananas, and ranges, in that order (Table 24). Among those who would serve apples, the sponse from the low income category was less than expected and the igh-income response was greater than expected, although the differences were ot large enough to suspect a dependent relationship.

Apples and bananas were the favorite choices for a child's sack lunch (Table 5). Of those who indicated apples, the previous pattern of fewer responses than xpected in the low income category and more responses than expected in the igh income category was again evident. Thirty-nine respondents specified ranges as their choice for a child's sack lunch, making this the third most opular fruit. Twenty-one of these responses were from the low income ategory, which had a cell chi-square value of 2.42, while eight were from the igh income category and contributed 1.37 to the total chi-square value of 1.23. There was some evidence that low income respondents had a stronger reference for peaches than respondents in the other income categories.

Apples and bananas were also the more common responses for the fresh uit one would serve for a children's party (Table 26). In the low income ategory apples and bananas were equally popular, while in the other income ategories approximately twice as many respondents checked apples rather than ananas. Also of interest was the response to pears. Of the nine respondents who hecked this fruit, seven were in the low income group and none were in the igh income group.

Apples were also the most frequently checked fruit for a teenager's party Table 27). Grapes and bananas were the second and third selections, spectively. The patterns by income category appeared to differ. Apples were roportionately less popular in the low income category while oranges, of lesser opularity in all income groups, were checked more frequently by low income spondents than by those of higher incomes.

Income had no apparent effect on the fruit that would be served for an dult party (Table 28). In general the order of preference was apples, peaches, nd grapes, although in the high income category grapes were selected more ften than peaches and the difference in responses to these two fruits in the low icome category was negligible. Although mixed fruit was not included as a ossible response to this question, it was written in by 22 respondents including 4 from the high income group. When this response was included in the contingency chi-square test the results were significant, although it should b pointed out that if mixed fruit had been listed as a possible response on th questionnaire the results would not necessarily have been the same.

Bananas were the most popular fruit in the low income group for a child snack, while apples were checked more frequently in the other two incom categories (Table 29). Only in the high income category was the response t apples disproportionately large, however. Among those who indicated the would serve peaches for a child's snack the number of low income responses wa relatively large, while only two respondents in the high income category checke peaches. There was also evidence that the preference for oranges for a child snack is greater among low income households in West Virginia. Pears were a unpopular response at all income levels.

Apples and bananas were also the more frequently checked fruits for teenager's snack; although, unlike the previous situation there was no evidenc that fruit preferences were related to income level (Table 30). Again pears an grapes were the least popular selections.

In considering the fruit one would serve for an adult's snack, apples agai were the most frequently mentioned fruit at all income levels (Table 31 However, this response was recorded fewer times in the low income category an more times in the high income category than would be expected under th conditions of independence. In all income categories bananas ranked second i frequency, although only in the low income category was the response unusuall large—over double the frequency in each of the other income categories.

Income level did not appear to influence attitudes concerning th nutritional value of processed apples as opposed to fresh apples (Table 32 Seventy-seven per cent of the homemakers interviewed ranked fresh apple higher than processed apples in this respect. Twenty-one per cent felt there is n difference in nutritional value, and only two per cent thought of processe apples as being more nutritious than fresh apples.

A series of characteristics for apples was listed and the respondents we asked which apple was superior—a fresh red delicious apple produced in Wes Virginia or Washington. This question proved very difficult to answer. Originally the respondents were asked to choose between the two apple-producing regions Many people did make a choice, but indicated to the interviewer that it was guess. In view of this lack of conviction, later respondents were permitted t answer "don't know" if it was apparent that they could not make a clear-cu choice.

There was a strong tendency for the respondents to answer all parts of th question in like fashion, that is, to check the same apple as superior in a characteristics listed. The West Virginia-produced apple was considered superio to the Washington-produced apple by at least 78 per cent of the respondents fo each characteristic listed (Tables 33-40). In all cases it appeared that dependenc etween income level and source of apple existed. Of those who indicated ashington-produced apples are superior to those produced in West Virginia, bout half were in the high income category. This unequal distribution caused e cell chi-square value for high income respondents who preferred Washington-roduced apples to be large (about half of the total tabulated chi-square in all ut one case).

Eighty-two per cent of the respondents felt that housewives would not pay igher prices for fresh red delicious apples produced in Washington than the me type produced in West Virginia (Table 41). The frequencies in each ategory were such that dependence between the two sets of classifications did ot appear likely.

tilization

Respondents were asked which fruit they preferred for fresh consumption. general, bananas were the most frequently selected fruit, followed by apples able 42). In the low income category, the response for apples was lower than ould be expected by chance. Peaches, third in popularity by low income spondents, received a comparatively high response. Apples and bananas each ceived 39 responses in the high income category. Oranges, which had a latively high frequency in the lower income categories, were next in opularity. Peaches had a low response rate in the high income category and us this cell had a large cell chi-square value. These frequencies indicate that the reference patterns do vary by income category. There was general agreement at brand is not of importance when selecting fruit for the family. eventy-eight per cent of the survey sample did not buy fruit by brand name able 43). Of those who do purchase a specific brand, Chiquita, which sells ananas, was mentioned most frequently. As was noted previously, there was me confusion as to what constitutes a brand name, with many respondents roviding a fruit type or variety rather than brand name.

The range of per capita annual fresh apple consumption was from zero to ver 100 pounds (Table 44). In each income category over half the population as accounted for in the first three consumption groups (0-30 pounds). There ppears to be a dependent relationship between income and fresh apple onsumption; however, a more rigorous statistical test would be necessary to etermine the nature of the differences.

In a series of questions respondents were asked if their use of fresh apples r various circumstances had varied over the last 10 years. Over half of the spondents indicated their use of fresh apples for pies, cakes, and other cooked esserts has remained constant over this time period, while very few noted an crease in use (Table 45). However, the patterns of the three income categories id not appear to be the same. The frequency of decrease for the low income ategory was relatively high when compared to the expected value while the reverse was true for the high income category. This indicates that the rate o decline in use for fresh apples for cooked desserts is more pronounced in lo income households.

In regard to use of fresh apples for applesauce or other preparations eate with the main part of the meal, two-thirds of those interviewed said their us had remained constant over the last 10 years (Table 46). Of those who ha decreased their use of fresh apples for this purpose, the proportion in the lo income category was unusually high and the responses in the high incon category were lighter than would be expected by chance alone. The small valu of the critical level for this test indicates a great degree of dependence betwee income level and rate of fresh apple use in this situation.

In the low and high income categories there appeared to be a depende relationship between income category and the quantity of apples eaten fresh the last 10 years (Table 47). In the low income category a substantially larg number than expected noted their use of fresh apples had decreased, while few than would be expected (under conditions of independence) indicated constant quantity was used over the last 10 years. The reverse was true of th high income category. In all income categories more respondents indicated th their fresh apple use had remained constant over the last 10 years, although the low income category the difference between decreased and constant use eating apples was negligible.

Most people in this survey indicated that their use of fresh apples fo preservation has remained constant over the last 10 years (Table 48). The ne popular response was a decrease in preservation, with only 15 of the 42 respondents indicating their use of fresh apples for preservation had increase over the last 10 years. Of those citing a decrease, 65 per cent were in the lo income category. As was true for all questions in this series, there appeared to b a dependent relationship between income level and use.

Those respondents who indicated an increase or decrease in any of the us for fresh apples mentioned were asked which factors contributed to their chan in consumption. In general, a decrease in family size was the primary reason f the decrease in the use of fresh apples in the various situations mentioned (Tab 49). Health reasons and shortage of time for preparation of fresh apples were le popular reasons given for decreasing consumption of fresh apples. In the lo income category 62 of the 79 respondents who indicated a decrease in fres apple consumption noted a decrease in family size was responsible for this. decrease in time available for fresh apple preparation was more evident in th middle and high income categories than in the low income category. Of the fiv people who cited a decrease in general food consumption as responsible for th decrease in fresh apple use, four of them were in the middle income category.

The most frequently mentioned factor contributing to increases in fres apple use was an increase in family size (Table 50). Health reasons, changes tes and preferences, and increased access to apple trees were of minor portance. The patterns were similar for all income categories.

The respondents were asked to estimate the per cent of their fresh apple rchases which were used in each of four stated categories: cooked desserts, ain dish accompaniments, eating fresh, and preservation. The average per cent ed for desserts was less than 30 in all income categories (Table 51). The mode, ich is the most frequently mentioned response, for all three income categories as 25 per cent; however, the range in the middle income category was nsiderably less than that of the low and high income groups. As the income el increased, the number of respondents who did not use fresh apples for eparation of desserts decreased.

The average per cent of fresh apple purchases used for applesauce or other eparations eaten with the main part of the meal was close to 30 for all income tegories (Table 52). As with the previous use, 25 per cent was the most quently mentioned portion of fresh apple purchases being used for applesauce other main dish accompaniments. Roughly the same number of respondents all income categories used fresh apples for making preparations to be eaten th the main course. Of those who did not use fresh apples for this purpose, the gest number was in the low income group and the smallest number was in the gh income category.

It appears that the majority of fresh apples are purchased for eating out of nd. The average per cent in this category was greater than 70 per cent in all ree income categories and the mode was 100 per cent in all income categories able 53). Only 12 of the 427 respondents did not eat fresh apples.

Eighty-nine per cent of the homemakers interviewed did not preserve fresh ples (Table 54). Of those who did preserve, this accounted for 26.5 per cent or s of their fresh apple purchases, on the average. The ranges for this use of sh apples were shorter than for the other uses described and the modes were nerally lower.

There appeared to be no significant relationship between income and source apples for apple pie. In all income categories roughly half of the respondents dicated apple pie they serve is usually made at home from fresh apples (Table). The second most frequent response was that apple pie is bought from a kery or grocery store. Only eight per cent of the survey sample indicated apple e is never served in the household.

The question concerning the type of applesauce usually served was nificant at the .10 level (Table 56). Over half of the total chi-square value was ntributed by the responses of the low income category. Of those who dicated they earn between $1,000 and $4,999 annually, the portion who serve plesauce made at home from fresh apples was greater than would be expected der conditions of independence while those who serve applesauce purchased canned form was less than would be expected by chance. Nine people out of the 427 responding to this question indicated they never serve applesauce. Six c those nine were in the low income category.

CONCLUSIONS AND IMPLICATIONS

There is some evidence from this study that apples, which used to b considered a seasonal fruit, are becoming a year-around fruit. Forty-three pe cent of the survey sample either purchased the same amount of apples ever month or made variable purchases during the year, independent of season variation. Increased use of controlled atmosphere storage, which evens out fres apple supply as well as price fluxuation throughout the year, should accentuat this trend. The year-around availability of fresh apples will bring them int competition with seasonal fruits such as peaches and strawberries with whic they have never had to compete. The apple industry may need to be mo aggressive in order to maintain its share of the fresh fruit market.

Approximately one-fourth of the homemakers interviewed could not nam the apple variety preferred by their household members. Brand preference wa virtually nonexistent, with 94 per cent of the homemakers disavowing bran loyality for apples. Four per cent of the respondents said they did buy a specif brand name, but, when asked to name the brand, they responded with a variet name. Thus it appears that industry education-oriented advertising, explaini prime uses of the various apple varieties, could be useful in combatting th downward trend in fresh apple consumption.

Statistical reports indicate that consumers differentiate between Washingto apples and those grown elsewhere, allowing Washington apples to command premium price. This did not appear to be true of West Virginia consumers, wh are generally loyal to their State. The homemakers interviewed overwhelmingl preferred locally-grown red delicious apples to those grown in Washington. The also indicated that they would not pay more for a Washington red deliciou apple.

The per cent of fresh apples purchased for eating out of hand wa considerably higher than for other uses such as applesauce, desserts, c preservation. Also, the largest increase in fresh apple consumption during the la 10 years was for eating out of hand—over double the increases reported in th other categories. Promotional campaigns presenting apples as a nutritiou non-messy, fresh fruit would probably be more effective than campaigns dealin with uses of apples which require preparation time.

In this study there was little evidence that income influences purchas patterns, utilization, or preferences of fresh apples. Thus, fresh apple consumption will likely be unaffected by the continuing rise of disposable income.

Tables 1-56

TABLE 1

Comparison of Socioeconomic Characteristics by Place of Residency.

	Place of Residency[a]			Per Cent of Total Sample (N=450)
cioeconomic Variable	Rural (N=33)	Other (N=240)	Urban (N=177)	
	Per Cent			
ge of Homemakers:				
ss than 25	3	8	3	5
25-34	9	17	7	13
34-44	18	20	19	20
45-54	33	20	23	22
55 and over	37	35	48	40
lucation of Homemaker:				
ade school (1 - 8 years)	36	41	18	31
gh school (9 - 12 years)	46	49	48	48
llege	18	7	28	17
aduate work	0	3	6	4
nnual Household Income:				
,000 - $4,999	39	22	46	36
,000 - $9,999	39	32	26	30
0,000 - $14,999	9	18	16	16
5,000 - $24,999	6	15	6	10
5,000 and over	3	6	1	3
income data	3	7	5	5
ze of Household:				
1	6	7	15	10
2	34	29	34	31
3	24	20	19	20
4	15	23	19	21
5	6	10	7	8
6	6	7	4	6
7+	9	5	2	4

ategories may not add to 100 per cent due to rounding.

TABLE 2

Have You Purchased Any Apples for Fresh Consumption for Your Family During the Last Year?[a]

	Household Income			
Purchased	$1,000- 4,999	$5,000- 9,999	$10,000 and up	TOTA[b]
Yes	133.00[c] 147.10 1.35	124.00 119.30 0.19	126.00 116.60 0.76	383.0 383.0 2.2
No	31.00 16.90 11.77	9.00 13.70 1.62	4.00 14.40 6.59	44.0 44.0 19.9
TOTALS[b]	164.00 164.00 13.12	133.00 133.00 1.80	130.00 130.00 7.35	427.0 427.0 22.2

TOTAL CHI-SQUARE = 22.27 WITH 2 D.F. PROB > CHISQ = 0.0001

[a] Questions asked of the homemaker during the interviewing are used as table headi throughout this study.

[b] Summation of row and column cell values may not equal total due to computer roundi

[c] The top figure in each response category indicates the actual number of homemak responding, the middle figure indicates the number of expected responses based statistical tests, and the bottom figure is the amount of the total chi-square value account for by that cell. For example, in the cell composed of the $1,000-4,999 income and the y categories, 133.00 is the number of actual homemakers in this income group who purchas apples during the last year, 147.10 is the expected number of yes responses based on t chi-square test, and 1.35 is the cell chi-square and indicates the amount of the to chi-square (22.27) accounted for by this cell.

TABLE 3

During the Year Do You Buy the Same Amount of Fresh Apples Each Month or Does the Amount Purchased Vary from One Month To Another?

	Household Income			
onth	$1,000- 4,999	$5,000- 9,999	$10,000 and up	TOTALS
me	41.00	40.00	48.00	129.00
ch	48.77	40.59	39.64	129.00
onth	1.24	0.01	1.76	3.01
ecember	42.00	27.00	29.00	98.00
nuary	37.05	30.83	30.12	98.00
ebruary	0.66	0.48	0.04	1.18
ne	11.00	5.00	9.00	25.00
ly	9.45	7.87	7.68	25.00
ugust	0.25	1.04	0.23	1.52
ptember	42.00	37.00	28.00	107.00
ctober	40.45	33.67	32.88	107.00
ovember	0.06	0.33	0.73	1.11
o special	19.00	20.00	12.00	51.00
onths,	19.28	16.05	15.67	51.00
riable	0.00	0.97	0.86	1.84
	155.00	129.00	126.00	410.00
TALS	155.00	129.00	126.00	410.00
	2.22	2.83	3.61	8.66

TAL CHI-SQUARE = 8.66 WITH 8 D.F. PROB > CHISQ = 0.37

TABLE 4

Why Do You Purchase More Apples During These Months Than Other Months?[a]

Reason for Purchase Variation	Household Income $1,000-4,999	$5,000-9,999	$10,000 and up	TOTAL
No more apples on their trees	14.00	8.00	4.00	26.00
	10.08	8.50	7.41	26.00
	1.52	0.03	1.57	3.12
Less expensive, plentiful, in season	33.00	22.00	30.00	85.00
	32.97	27.80	24.23	85.00
	0.00	1.21	1.37	2.59
Cooking, canning, cider	10.00	6.00	3.00	19.00
	7.37	6.21	5.42	19.00
	0.94	0.01	1.08	2.02
Buy according to appetite	13.00	18.00	14.00	45.00
	17.45	14.72	12.83	45.00
	1.14	0.73	0.11	1.97
Holidays	10.00	9.00	5.00	24.00
	9.31	7.85	6.84	24.00
	0.05	0.17	0.50	0.72
Fresher or taste better	3.00	7.00	5.00	15.00
	5.82	4.91	4.28	15.00
	1.36	0.89	0.12	2.38
TOTALS	83.00	70.00	61.00	214.00
	83.00	70.00	61.00	214.00
	5.01	3.04	4.75	12.80

TOTAL CHI-SQUARE = 12.80 WITH 10 D.F. PROB> CHISQ = 0.23

[a] See Table 3 for months referred to.

TABLE 5

When You Buy Apples for Fresh Consumption Do You Usually Buy Red Apples, Yellow Apples, or Some of Both Colors?

	Household Income			
ple Color	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	57.00	37.00	39.00	133.00
	50.19	41.88	40.92	133.00
	0.92	0.57	0.09	1.58
	17.00	10.00	14.00	41.00
low	15.47	12.91	12.62	41.00
	0.15	0.66	0.15	0.96
ne of both	83.00	84.00	75.00	242.00
ors	91.33	76.21	74.46	242.00
	0.76	0.80	0.00	1.56
	157.00	131.00	128.00	416.00
TALS	157.00	131.00	128.00	416.00
	1.83	2.02	0.25	4.10

AL CHI-SQUARE = 4.10 WITH 4 D.F. PROB>CHISQ = 0.39

TABLE 6

What Variety of Apple Does Your Family Prefer for Eating Fresh?

	Household Income			
Variety	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTA
Don't know — No description	31.00	32.00	22.00	85.0
	31.72	29.24	24.04	85.0
	0.02	0.26	0.17	0.4
Don't know — Gave description	2.00	0.00	1.00	3.0
	1.12	1.03	0.85	3.0
	0.69	1.03	0.03	1.7
Yellow delicious	22.00	20.00	18.00	60.0
	22.39	20.64	16.97	60.0
	0.01	0.02	0.06	0.0
Red delicious	37.00	45.00	33.00	115.0
	42.92	39.56	32.52	115.0
	0.82	0.75	0.01	1.5
Grimes golden	14.00	11.00	10.00	35.0
	13.06	12.04	9.90	35.0
	0.07	0.09	0.00	0.1
Staymen, winesap	22.00	10.00	13.00	45.0
	16.79	15.48	12.73	45.0
	1.61	1.94	0.01	3.5
TOTALS	128.00	118.00	97.00	343.0
	128.00	118.00	97.00	343.0
	3.21	4.09	0.28	7.5

TOTAL CHI-SQUARE = 7.58 WITH 10 D.F. PROB >CHISQ = 0.67

TABLE 7

Where Do You Usually Buy Apples Used for Fresh Consumption?

	Household Income			
L ation	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	67.00	65.00	79.00	211.00
S ermarket	77.88	66.83	66.30	211.00
	1.52	0.05	2.43	4.00
Pr uce or	33.00	21.00	21.00	75.00
fr	27.68	23.75	23.57	75.00
m ket	1.02	0.32	0.28	1.62
N hborhood	25.00	24.00	17.00	66.00
st	24.36	20.90	20.74	66.00
	0.02	0.46	0.67	1.15
F t	23.00	17.00	9.00	49.00
fa	18.08	15.52	15.40	49.00
	1.34	0.14	2.66	4.13
	148.00	127.00	126.00	401.00
T ALS	148.00	127.00	126.00	401.00
	3.89	0.97	6.04	10.91

T AL CHI-SQUARE = 10.91 WITH 6 D.F. PROB > CHISQ = 0.09

TABLE 8

How Are The Apples You Buy For Fresh Consumption Usually Packaged?

Package	Household Income $1,000-4,999	$5,000-9,999	$10,000 and up	TOTA
In clear plastic bags	79.00 89.00 1.12	77.00 73.50 0.17	80.00 73.50 0.58	236.0 236.0 1.8
In over-wrapped trays	7.00 9.05 0.46	8.00 7.47 0.04	9.00 7.47 0.31	24.0 24.0 0.8
Displayed and sold as loose apples	31.00 24.89 1.50	18.00 20.55 0.32	17.00 20.55 0.61	66.0 66.0 2.4
Basket or box	38.00 32.06 1.10	25.00 26.47 0.08	22.00 26.47 0.76	85.0 85.0 1.9
TOTALS	155.00 155.00 4.19	128.00 128.00 0.60	128.00 128.00 2.26	411.0 411.0 7.0

TOTAL CHI-SQUARE = 7.05 WITH 6 D.F. PROB>CHISQ = 0.32

TABLE 9

Which Type of Package Do You Prefer for The Sake of Convenience In Buying, Handling, and Storing for Your Family?

	Household Income			
ckage eference	$1,000- 4,999	$5,000- 9,999	$10,000 and up	TOTALS
ear	78.00	70.00	75.00	223.00
astic	84.12	69.44	69.44	223.00
gs	0.45	0.00	0.45	0.89
sket	29.00	19.00	13.00	61.00
	23.01	18.99	18.99	61.00
x	1.56	0.00	1.89	3.45
ose,	36.00	28.00	27.00	91.00
dividual	34.33	28.34	28.34	91.00
	0.08	0.00	0.06	0.15
erwrapped	6.00	6.00	8.00	20.00
ay	7.54	6.23	6.23	20.00
	0.32	0.01	0.50	0.83
	149.00	123.00	123.00	395.00
TALS	149.00	123.00	123.00	395.00
	2.40	0.02	2.90	5.32

TAL CHI-SQUARE = 5.32 WITH 6 D.F. PROB > CHISQ = 0.50

TABLE 10

Why Do You Prefer This Type Package?

	Household Income			
Reason	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTAL
Can see or pick what you get	39.00	41.00	51.00	131.00
	46.84	42.26	41.91	131.00
	1.31	0.04	1.97	3.32
Keep better	13.00	7.00	8.00	28.00
	10.01	9.03	8.96	28.00
	0.89	0.46	0.10	1.45
Easier to handle or store	37.00	38.00	36.00	111.00
	39.69	35.81	35.51	111.00
	0.18	0.13	0.01	0.32
Economy	17.00	12.00	7.00	36.00
	12.87	11.61	11.52	36.00
	1.32	0.01	1.77	3.11
Only way they come	8.00	11.00	7.00	26.00
	9.30	8.39	8.32	26.00
	0.18	0.81	0.21	1.20
Amount is right	19.00	11.00	10.00	40.00
	14.30	12.90	12.80	40.00
	1.54	0.28	0.61	2.44
TOTALS	133.00	120.00	119.00	372.00
	133.00	120.00	119.00	372.00
	5.43	1.74	4.67	11.84

TOTAL CHI-SQUARE = 11.84 WITH 10 D.F. PROB > CHISQ = 0.30

TABLE 11

Can You Usually Find Apples for Fresh Consumption Packaged In the Size Package You Prefer for Your Family?

	Household Income			
esponse	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
eferred ckage ailable	145	120	114	379
ckages e too nall	4	1	2	7
ckages e too rge	5	8	8	21
ther ason	2	2	3	7
TALS	156	131	127	414

TABLE 12

What Suggestions Do You Have for Improving Packaging of Apples for Fresh Consumption to Aid the Housewife?

	Household Income			
Suggestions	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTAL
No suggestions	140	111	109	360
Make smaller packages	6	5	10	21
Sell apples loose	2	2	2	6
Reference to spoilage due to plastic bags	1	5	1	7
Put brand on package	4	2	1	7
TOTALS	153	125	123	401

TABLE 13

Do You Look for A Specific Brand Name When You Buy Apples for Fresh Consumption? If Yes, What Brand?

	Household Income			
nd	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	151.00	126.00	117.00	394.00
	150.45	123.18	120.36	394.00
	0.00	0.06	0.09	0.16
	6.00	5.00	7.00	18.00
Gave variety	6.87	5.63	5.50	18.00
	0.11	0.07	0.41	0.59
	3.00	0.00	4.00	7.00
Other	2.67	2.19	2.14	7.00
	0.04	2.19	1.62	3.85
	160.00	131.00	128.00	419.00
TALS	160.00	131.00	128.00	419.00
	0.15	2.32	2.12	4.60

AL CHI-SQUARE = 4.60 WITH 4 D.F. PROB > CHISQ = 0.33

TABLE 14

Which of The Following Characteristics Do You Prefer In Apples Purchased for Fresh Consumption?

	Household Income			
Size	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTA
Small	8.00	2.00	2.00	12.0
	4.59	3.71	3.71	12.0
	2.54	0.78	0.78	4.1
Medium	127.00	110.00	112.00	349.0
	133.47	107.77	107.77	349.0
	0.31	0.05	0.17	0.5
Large	26.00	18.00	16.00	60.0
	22.95	18.53	18.53	60.0
	0.41	0.02	0.34	0.7
TOTALS	161.00	130.00	130.00	421.0
	161.00	130.00	130.00	421.0
	3.26	0.85	1.30	5.4

TOTAL CHI-SQUARE = 5.40 WITH 4 D.F. PROB > CHISQ = 0.25

TABLE 15

Which of The Following Characteristics Do You Prefer in Apples Purchased for Fresh Consumption?

	Household Income			
rmness	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	44.00	14.00	10.00	68.00
ft	25.94	21.11	20.95	68.00
	12.57	2.39	5.72	20.68
	93.00	88.00	93.00	274.00
sp	104.54	85.06	84.41	274.00
	1.27	0.10	0.87	2.25
	24.00	29.00	27.00	80.00
rd	30.52	24.83	24.64	80.00
	1.39	0.70	0.23	2.32
	161.00	131.00	130.00	422.00
TALS	161.00	131.00	130.00	422.00
	15.23	3.19	6.82	25.25

TAL CHI-SQUARE = 25.25 WITH 4 D.F. PROB > CHISQ = 0.0001

TABLE 16

Which of The Following Characteristics Do You Prefer in Apples Purchased for Fresh Consumption?

	Household Income			
Texture	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTAL
	47.00	17.00	15.00	79.0
Mealy	29.74	24.82	24.44	79.0
	10.01	2.46	3.65	16.1
	110.00	113.00	112.00	335.0
Fine textured	126.13	105.24	103.63	335.0
	2.06	0.57	0.68	3.3
	0.00	1.00	2.00	3.0
No preference	1.13	0.94	0.93	3.0
	1.13	0.00	1.24	2.3
	157.00	131.00	129.00	417.0
TOTALS	157.00	131.00	129.00	417.0
	13.20	3.04	5.56	21.8

TOTAL CHI-SQUARE = 21.80 WITH 4 D.F. PROB > CHISQ = 0.0003

TABLE 17

Which of The Following Characteristics Do You Prefer in Apples Purchased for Fresh Consumption?

	Household Income			
iciness	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	11.00	3.00	1.00	15.00
ry	5.71	4.64	4.64	15.00
	4.89	0.58	2.86	8.33
	149.00	127.00	129.00	405.00
icy	154.29	125.36	125.36	405.00
	0.18	0.02	0.11	0.31
	160.00	130.00	130.00	420.00
OTALS	160.00	130.00	130.00	420.00
	5.07	0.60	2.96	8.64

OTAL CHI-SQUARE = 8.64 WITH 2 D.F. PROB > CHISQ = 0.01

TABLE 18

Which of The Following Characteristics Do You Prefer in Apples Purchased for Fresh Consumption?

	Household Income			
aste	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	98.00	97.00	83.00	278.00
veet	104.76	87.65	85.59	278.00
	0.44	1.00	0.08	1.51
	55.00	31.00	42.00	128.00
art	48.24	40.35	39.41	128.00
	0.95	2.17	0.17	3.29
	153.00	128.00	125.00	406.00
OTALS	153.00	128.00	125.00	406.00
	1.39	3.17	0.25	4.80

OTAL CHI-SQUARE = 4.80 WITH 2 D.F. PROB > CHISQ = 0.09

TABLE 19

Which Of The Following Characteristics Do You Prefer In Apples Purchased for Fresh Consumption?

	Household Income			
Color	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTAL
Bright or deep red	72.00 80.82 0.96	74.00 66.17 0.93	65.00 64.01 0.02	211.00 211.00 1.90
More red than yellow	25.00 26.05 0.04	18.00 21.33 0.52	25.00 20.63 0.93	68.00 68.00 1.49
More yellow than red	52.00 42.13 2.31	30.00 34.50 0.59	28.00 33.37 0.86	110.00 110.00 3.76
TOTALS	149.00 149.00 3.31	122.00 122.00 2.03	118.00 118.00 1.81	389.00 389.00 7.15

TOTAL CHI-SQUARE = 7.15 WITH 4 D.F. PROB > CHISQ = 0.13

TABLE 20

In Your Opinion Which Variety of Apple Fits This Description Best?

	Household Income			
riety	$1,000- 4,999	$5,000- 9,999	$10,000 and up	TOTALS
	25.00	18.00	19.00	62.00
llow delicious	23.09	19.93	18.98	62.00
	0.16	0.19	0.00	0.34
	42.00	59.00	49.00	150.00
d delicious	55.87	48.21	45.92	150.00
	3.44	2.41	0.21	6.06
	14.00	4.00	5.00	23.00
imes golden	8.57	7.39	7.04	23.00
	3.45	1.56	0.59	5.60
	25.00	10.00	17.00	52.00
aymen, winesap	19.37	16.71	15.92	52.00
	1.64	2.70	0.07	4.41
	16.00	6.00	10.00	32.00
her	11.92	10.29	9.80	32.00
	1.40	1.79	0.00	3.19
	24.00	29.00	20.00	73.00
n't know	27.19	23.46	22.35	73.00
	0.37	1.31	0.25	1.93
	146.00	126.00	120.00	392.00
TALS	146.00	126.00	120.00	392.00
	10.46	9.95	1.12	21.52

TAL CHI-SQUARE = 21.52 WITH 10 D.F. PROB > CHISQ = 0.02

TABLE 21

Which of The Following Fresh Fruit Would You Serve for Breakfast?

Fruit[a]	Household Income $1,000-4,999	 $5,000-9,999	 $10,000 and up	TOTAL
	30.00	24.00	24.00	78.00
Bananas	27.86	24.97	25.17	78.00
	0.16	0.04	0.05	0.26
	20.00	26.00	25.00	71.00
Oranges	25.36	22.73	22.92	71.00
	1.13	0.47	0.19	1.79
	85.00	71.00	73.00	229.00
Grapefruits	81.79	73.30	73.91	229.00
	0.13	0.07	0.01	0.21
	135.00	121.00	122.00	378.00
TOTALS	135.00	121.00	122.00	378.00
	1.42	0.58	0.26	2.26

TOTAL CHI-SQUARE=2.26 WITH 4 D.F. PROB>CHISQ = 0.69

[a] Apples and three other fruits were eliminated from this test due to very low response.

TABLE 22

Which Of The Following Fresh Fruit Would You Serve for Lunch?

	Household Income			
uit	$1,000- 4,999	$5,000- 9,999	$10,000 and up	TOTALS
	24.00	10.00	13.00	47.00
ars	17.90	14.37	14.73	47.00
	2.08	1.33	0.20	3.61
	28.00	22.00	28.00	78.00
nanas	29.70	23.84	24.45	78.00
	0.10	0.14	0.52	0.76
	50.00	42.00	54.00	146.00
aches	55.60	44.63	45.77	146.00
	0.56	0.16	1.48	2.20
	45.00	44.00	26.00	115.00
ples	43.80	35.16	36.05	115.00
	0.03	2.23	2.80	5.06
	147.00	118.00	121.00	386.00
TALS	147.00	118.00	121.00	386.00
	2.77	3.85	5.00	11.63

TAL CHI-SQUARE = 11.63 WITH 6 D.F. PROB >CHISQ = 0.07

TABLE 23

Which Of The Following Fresh Fruit Would You Serve for The Evening Meal?

	Household Income			
Fruit	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTAL
	32.00	31.00	29.00	92.00
Pears	34.70	29.68	27.62	92.00
	0.21	0.06	0.07	0.34
	24.00	19.00	14.00	57.00
Bananas	21.50	18.39	17.11	57.00
	0.29	0.02	0.57	0.88
	48.00	45.00	44.00	137.00
Peaches	51.67	44.19	41.13	137.00
	0.26	0.01	0.20	0.48
	41.00	34.00	31.00	106.00
Apples	39.98	34.19	31.83	106.00
	0.03	0.00	0.02	0.05
	7.00	1.00	3.00	11.00
Oranges	4.15	3.55	3.30	11.00
	1.96	1.83	0.03	3.82
	152.00	130.00	121.00	403.00
TOTALS	152.00	130.00	121.00	403.00
	2.75	1.93	0.88	5.56

TOTAL CHI-SQUARE = 5.56 WITH 8 D.F. PROB >CHISQ = 0.70

TABLE 24

Which Of The Following Fresh Fruit Would You Serve for An Adult's Sack Lunch?

	Household Income			
uit	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	39.00	29.00	25.00	93.00
nanas	35.57	28.60	28.83	93.00
	0.33	0.01	0.51	0.84
	7.00	5.00	4.00	16.00
aches	6.12	4.92	4.96	16.00
	0.13	0.00	0.19	0.31
	91.00	79.00	91.00	261.00
pples	99.83	80.26	80.91	261.00
	0.78	0.02	1.26	2.06
	16.00	10.00	4.00	30.00
ranges	11.48	9.23	9.30	30.00
	1.78	0.07	3.02	4.87
	153.00	123.00	124.00	400.00
TALS	153.00	123.00	124.00	400.00
	3.02	0.09	4.97	8.09

TAL CHI-SQUARE = 8.09 WITH 6 D.F. PROB > CHISQ = 0.23

TABLE 25

Which Of The Following Fresh Fruit Would You Serve for A Child's Sack Lunch?

	Household Income			
Fruit	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTA
	53.00	38.00	33.00	124.0
Bananas	47.62	38.03	38.34	124.0
	0.61	0.00	0.74	1.3
	6.00	2.00	2.00	10.0
Peaches	3.84	3.07	3.09	10.0
	1.21	0.37	0.39	1.9
	74.00	73.00	81.00	228.0
Apples	87.56	69.94	70.50	228.0
	2.10	0.13	1.56	3.8
	21.00	10.00	8.00	39.0
Oranges	14.98	11.96	12.06	39.0
	2.42	0.32	1.37	4.11
	154.00	123.00	124.00	401.0
TOTALS	154.00	123.00	124.00	401.0
	6.34	0.83	4.06	11.2

TOTAL CHI-SQUARE = 11.23 WITH 6 D.F. PROB > CHISQ = 0.08

TABLE 26

Which Of The Following Fresh Fruit Would You Serve for A Children's Party?

	Household Income			
uit	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	7.00	2.00	0.00	9.00
ars	3.46	2.79	2.75	9.00
	3.62	0.22	2.75	6.59
	52.00	33.00	34.00	119.00
nanas	45.77	36.90	36.33	119.00
	0.85	0.41	0.15	1.41
	10.00	6.00	5.00	21.00
aches	8.08	6.51	6.41	21.00
	0.46	0.04	0.31	0.81
	55.00	63.00	69.00	187.00
ples	71.92	57.99	57.09	187.00
	3.98	0.43	2.49	6.90
	12.00	12.00	4.00	28.00
anges	10.77	8.68	8.55	28.00
	0.14	1.27	2.42	3.83
	24.00	13.00	15.00	52.00
apes	20.00	16.13	15.88	52.00
	0.80	0.61	0.05	1.45
	160.00	129.00	127.00	416.00
TALS	160.00	129.00	127.00	416.00
	9.85	2.98	8.16	20.99

TAL CHI-SQUARE = 20.99 WITH 10 D.F. PROB > CHISQ = 0.02

TABLE 27

Which Of The Following Fresh Fruit Would You Serve for A Teenager's Party?

Fruit	Household Income $1,000-4,999	$5,000-9,999	$10,000 and up	TOTAL
Bananas	24.00	18.00	20.00	62.0
	23.89	18.90	19.21	62.0
	0.00	0.04	0.03	0.0
Peaches	20.00	12.00	7.00	39.0
	15.03	11.89	12.08	39.0
	1.64	0.00	2.14	3.7
Apples	56.00	63.00	65.00	184.0
	70.91	56.08	57.01	184.0
	3.14	0.85	1.12	5.1
Oranges	20.00	10.00	7.00	37.0
	14.26	11.28	11.46	37.0
	2.31	0.14	1.74	4.1
Grapes	33.00	18.00	24.00	75.0
	28.90	22.86	23.24	75.0
	0.58	1.03	0.03	1.6
TOTALS	153.00	121.00	123.00	397.0
	153.00	121.00	123.00	397.0
	7.67	2.07	5.05	14.8

TOTAL CHI-SQUARE = 14.80 WITH 8 D.F. PROB$>$CHISQ = 0.06

TABLE 28

Which Of The Following Fresh Fruit Would You Serve for An Adult's Party?

	Household Income			
uit	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	17.00	9.00	14.00	40.00
ars	16.22	12.35	11.43	40.00
	0.04	0.91	0.58	1.52
	19.00	17.00	8.00	44.00
nanas	17.85	13.58	12.57	44.00
	0.07	0.86	1.66	2.60
	33.00	25.00	17.00	75.00
aches	30.42	23.15	21.43	75.00
	0.22	0.15	0.92	1.28
	43.00	47.00	40.00	130.00
ples	52.73	40.13	37.14	130.00
	1.80	1.18	0.22	3.19
	10.00	7.00	8.00	25.00
anges	10.14	7.72	7.14	25.00
	0.00	0.07	0.10	0.17
	6.00	1.00	4.00	11.00
apefruit	4.46	3.40	3.14	11.00
	0.53	1.69	0.23	2.45
	31.00	15.00	21.00	67.00
apes	27.18	20.68	19.14	67.00
	0.54	1.56	0.18	2.28
	159.00	121.00	112.00	392.00
TALS	159.00	121.00	112.00	392.00
	3.20	6.41	3.89	13.50

TAL CHI-SQUARE = 13.50 WITH 12 D.F. PROB > CHISQ = 0.33

TABLE 29

Which Of The Following Fresh Fruit Would You Serve for A Child's Snack?

Fruit	Household Income $1,000-4,999	 $5,000-9,999	 $10,000 and up	TOTAL
Pears	6.00	6.00	2.00	14.0
	5.39	4.35	4.25	14.0
	0.07	0.62	1.19	1.8
Bananas	58.00	42.00	39.00	139.0
	53.54	43.23	42.23	139.0
	0.37	0.03	0.25	0.6
Peaches	16.00	10.00	2.00	28.0
	10.78	8.71	8.51	28.0
	2.52	0.19	4.98	7.6
Apples	51.00	55.00	67.00	173.0
	66.63	53.80	52.56	173.0
	3.67	0.03	3.97	7.6
Oranges	21.00	8.00	11.00	40.0
	15.41	12.44	12.15	40.0
	2.03	1.58	0.11	3.7
Grapes	9.00	9.00	6.00	24.0
	9.24	7.46	7.29	24.0
	0.01	0.32	0.23	0.5
TOTALS	161.00	130.00	127.00	418.0
	161.00	130.00	127.00	418.0
	8.67	2.78	10.72	22.17

TOTAL CHI-SQUARE = 22.17 WITH 10 D.F. PROB > CHISQ = 0.01

TABLE 30

Which Of The Following Fresh Fruit Would You Serve for A Teenager's Snack?

	Household Income			
uit	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	9.00	3.00	3.00	15.00
ars	5.72	4.66	4.62	15.00
	1.89	0.59	0.57	3.05
	36.00	25.00	23.00	84.00
nanas	32.01	26.10	25.89	84.00
	0.50	0.05	0.32	0.87
	16.00	14.00	8.00	38.00
aches	14.48	11.81	11.71	38.00
	0.16	0.41	1.18	1.74
	70.00	65.00	72.00	207.00
ples	78.88	64.31	63.81	207.00
	1.00	0.01	1.05	2.06
	15.00	14.00	13.00	42.00
anges	16.00	13.05	12.95	42.00
	0.06	0.07	0.00	0.13
	11.00	7.00	8.00	26.00
apes	9.91	8.08	8.01	26.00
	0.12	0.14	0.00	0.26
	157.00	128.00	127.00	412.00
TALS	157.00	128.00	127.00	412.00
	3.73	1.27	3.12	8.12

TAL CHI-SQUARE = 8.12 WITH 10 D.F. PROB> CHISQ = 0.62

TABLE 31

Which Of The Following Fresh Fruit Would You Serve for An Adult's Snack?

	Household Income			
Fruit	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTA
Pears	8.00	13.00	7.00	28.0
	10.73	8.50	8.77	28.0
	0.69	2.38	0.36	3.4
Bananas	49.00	21.00	21.00	91.0
	34.87	27.63	28.51	91.0
	5.73	1.59	1.98	9.3
Peaches	22.00	19.00	14.00	55.0
	21.07	16.70	17.23	55.0
	0.04	0.32	0.61	0.9
Apples	56.00	56.00	67.00	179.0
	68.58	54.35	56.07	179.0
	2.31	0.05	2.13	4.4
Oranges	13.00	8.00	13.00	34.0
	13.03	10.32	10.65	34.0
	0.00	0.52	0.52	1.0
Grapes	11.00	9.00	8.00	28.0
	10.73	8.50	8.77	28.0
	0.01	0.03	0.07	0.1
TOTALS	159.00	126.00	130.00	415.0
	159.00	126.00	130.00	415.0
	8.78	4.89	5.65	19.3

TOTAL CHI-SQUARE = 19.33 WITH 10 D.F. PROB > CHISQ = 0.04

TABLE 32

How Do You Rate The Nutritional Value Of Processed Apples As Opposed To Fresh Apples?

	Household Income			
utritional Value	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
rocessed apples have	2.00	4.00	0.00	6.00
ore nutritional value	2.32	1.88	1.80	6.00
	0.04	2.38	1.80	4.22
resh apples have more	124.00	101.00	103.00	328.00
utritional value	126.87	102.89	98.25	328.00
	0.06	0.03	0.23	0.33
hey are equally	38.00	28.00	24.00	90.00
utritious	34.81	28.23	26.96	90.00
	0.29	0.00	0.32	0.62
	164.00	133.00	127.00	424.00
OTALS	164.00	133.00	127.00	424.00
	0.40	2.42	2.35	5.17

OTAL CHI-SQUARE = 5.17 WITH 4 D.F. PROB > CHISQ = 0.27

TABLE 33

In Your Opinion Which Of The Following Apples Has The Best Flavor?

	Household Income			
Preferred Apple	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
Fresh red delicious produced in West Virginia	125.00 123.05 0.03	100.00 101.89 0.04	94.00 94.05 0.00	319.00 319.00 0.07
Fresh red delicious produced in Washington	7.00 10.80 1.34	6.00 8.94 0.97	15.00 8.26 5.51	28.00 28.00 7.82
Don't know	25.00 23.14 0.15	24.00 19.16 1.22	11.00 17.69 2.53	60.00 60.00 3.90
TOTALS	157.00 157.00 1.52	130.00 130.00 2.22	120.00 120.00 8.04	407.00 407.00 11.78

TOTAL CHI-SQUARE = 11.78 WITH 4 D.F. PROB > CHISQ = 0.02

TABLE 34

In Your Opinion Which Of The Following Apples Has The Best Texture?

	Household Income			
ferred Apple	$1,000- 4,999	$5,000- 9,999	$10,000 and up	TOTALS
esh red delicious produced	125.00	100.00	95.00	320.00
West Virginia	122.96	102.46	94.58	320.00
	0.03	0.06	0.00	0.10
esh red delicious produced	5.00	6.00	14.00	25.00
Washington	9.61	8.00	7.39	25.00
	2.21	0.50	5.91	8.63
n't know	26.00	24.00	11.00	61.00
	23.44	19.53	18.03	61.00
	0.28	1.02	2.74	4.04
	156.00	130.00	120.00	406.00
TALS	156.00	130.00	120.00	406.00
	2.52	1.58	8.66	12.76

TAL CHI-SQUARE = 12.76 WITH 4 D.F. PROB > CHISQ = 0.01

TABLE 35

In Your Opinion Which Of The Following Apples Has The Best Tenderness Of Skin?

	Household Income			
Preferred Apple	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTA
Fresh red delicious produced in West Virginia	125.00	100.00	94.00	319.0
	123.36	102.14	93.50	319.0
	0.02	0.04	0.00	0.0
Fresh red delicious produced in Washington	6.00	6.00	14.00	26.0
	10.05	8.33	7.62	26.0
	1.63	0.65	5.34	7.6
Don't know	26.00	24.00	11.00	61.0
	23.59	19.53	17.88	61.0
	0.25	1.02	2.65	3.9
TOTALS	157.00	130.00	119.00	406.0
	157.00	130.00	119.00	406.0
	1.90	1.72	7.99	11.6

TOTAL CHI-SQUARE = 11.61 WITH 4 D.F. PROB > CHISQ = 0.02

TABLE 36

In Your Opinion Which Of The Following Apples Has The Best Sweetness?

	Household Income			
ferred Apple	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
sh red delicious produced	124.00	100.00	95.00	319.00
Vest Virginia	122.57	102.14	94.29	319.00
	0.02	0.04	0.01	0.07
sh red delicious produced	6.00	6.00	14.00	26.00
Vashington	9.99	8.33	7.68	26.00
	1.59	0.65	5.19	7.43
n't know	26.00	24.00	11.00	61.00
	23.44	19.53	18.03	61.00
	0.28	1.02	2.74	4.04
	156.00	130.00	120.00	406.00
TALS	156.00	130.00	120.00	406.00
	1.89	1.72	7.94	11.54

AL CHI-SQUARE = 11.54 WITH 4 D.F. PROB > CHISQ = 0.02

TABLE 37

In Your Opinion Which Of The Following Apples Has The Best Color?

	Household Income			
Preferred Apple	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTA
Fresh red delicious produced	125.00	100.00	94.00	319.0
in West Virginia	123.05	101.89	94.05	319.0
	0.03	0.04	0.00	0.0
Fresh red delicious produced	6.00	6.00	15.00	27.0
in Washington	10.42	8.62	7.96	27.0
	1.87	0.80	6.22	8.8
Don't know	26.00	24.00	11.00	61.0
	23.53	19.48	17.99	61.0
	0.26	1.05	2.71	4.0
	157.00	130.00	120.00	407.0
TOTALS	157.00	130.00	120.00	407.0
	2.16	1.88	8.94	12.9

TOTAL CHI-SQUARE = 12.98 WITH 4 D.F. PROB >CHISQ = 0.01

TABLE 38

In Your Opinion Which Of The Following Apples Has The Best Size?

	Household Income			
referred Apple	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
resh red delicious produced West Virginia	123.00	100.00	93.00	316.00
	118.17	95.41	102.42	316.00
	0.20	0.22	0.87	1.28
resh red delicious produced Washington	9.00	6.00	14.00	29.00
	10.84	8.76	9.40	29.00
	0.31	0.87	2.25	3.43
on't know	3.00	3.00	10.00	16.00
	5.98	4.83	5.19	16.00
	1.49	0.69	4.47	6.65
OTALS	135.00	109.00	117.00	361.00
	135.00	109.00	117.00	361.00
	2.00	1.78	7.59	11.37

OTAL CHI-SQUARE = 11.37 WITH 4 D.F. PROB > CHISQ = 0.02

TABLE 39

In Your Opinion Which Of The Following Apples Has The Best Juiciness?

	Household Income			
Preferred Apple	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTAL
Fresh red delicious produced	125.00	100.00	94.00	319.00
in West Virginia	123.05	101.89	94.05	319.00
	0.03	0.04	0.00	0.07
Fresh red delicious produced	6.00	6.00	15.00	27.00
in Washington	10.42	8.62	7.96	27.00
	1.87	0.80	6.22	8.89
Don't know	26.00	24.00	11.00	61.00
	23.53	19.48	17.99	61.00
	0.26	1.05	2.71	4.02
	157.00	130.00	120.00	407.00
TOTALS	157.00	130.00	120.00	407.00
	2.16	1.88	8.94	12.98

TOTAL CHI-SQUARE = 12.98 WITH 4 D.F. PROB > CHISQ = 0.01

TABLE 40

In Your Opinion Which Of The Following Apples Has The Best Nutritional Value?

	Household Income			
referred Apple	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
resh red delicious produced	124.00	98.00	93.00	315.00
West Virginia	118.13	94.50	102.38	315.00
	0.29	0.13	0.86	1.28
resh red delicious produced	4.00	5.00	14.00	23.00
Washington	8.63	6.90	7.48	23.00
	2.48	0.52	5.70	8.70
on't know	7.00	5.00	10.00	22.00
	8.25	6.60	7.15	22.00
	0.19	0.39	1.14	1.71
	135.00	108.00	117.00	360.00
OTALS	135.00	108.00	117.00	360.00
	2.96	1.04	7.69	11.69

OTAL CHI-SQUARE = 11.69 WITH 4 D.F. PROB > CHISQ = 0.02

TABLE 41

Do You Think Housewives Are Willing To Pay Higher Prices for Red Delicious Apples Produced In West Virginia?

Decision	Household Income $1,000-4,999	 $5,000-9,999	 $10,000 and up	TOTALS
	18.00	20.00	16.00	54.00
Yes	20.72	16.71	16.58	54.00
	0.36	0.65	0.02	1.03
	129.00	105.00	109.00	343.00
No	131.61	106.11	105.29	343.00
	0.05	0.01	0.13	0.19
	13.00	4.00	3.00	20.00
Don't know	7.67	6.19	6.14	20.00
	3.70	0.77	1.61	6.07
	160.00	129.00	128.00	417.00
TOTALS	160.00	129.00	128.00	417.00
	4.11	1.43	1.76	7.30

TOTAL CHI-SQUARE = 7.30 WITH 4 D.F. PROB>CHISQ = 0.12

TABLE 42

Which Fruit Does Your Family Like Best for Fresh Consumption?

	Household Income			
Fruit	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
Grapefruit	8.00	7.00	9.00	24.00
	9.16	7.59	7.25	24.00
	0.15	0.05	0.42	0.62
Apples	35.00	44.00	39.00	118.00
	45.03	37.34	35.63	118.00
	2.24	1.19	0.32	3.74
Bananas	62.00	51.00	39.00	152.00
	58.01	48.10	45.89	152.00
	0.27	0.18	1.04	1.49
Oranges	19.00	9.00	20.00	48.00
	18.32	15.19	14.49	48.00
	0.03	2.52	2.09	4.64
Peaches	20.00	11.00	6.00	37.00
	14.12	11.71	11.17	37.00
	2.45	0.04	2.39	4.88
Grapes	3.00	1.00	5.00	9.00
	3.43	2.85	2.72	9.00
	0.06	1.20	1.92	3.17
Pears	8.00	7.00	3.00	18.00
	6.87	5.70	5.43	18.00
	0.19	0.30	1.09	1.58
Strawberries	3.00	1.00	4.00	8.00
	3.05	2.53	2.42	8.00
	0.00	0.93	1.04	1.97
TOTALS	158.00	131.00	125.00	414.00
	158.00	131.00	125.00	414.00
	5.37	6.40	10.31	22.08

TOTAL CHI-SQUARE = 22.08 WITH 14 D.F. PROB > CHISQ = 0.08

TABLE 43

When Buying This Fruit Do You Look for A Specific Brand Name? If Yes, What Brand? [a]

Brand	Household Income $1,000- 4,999	 $5,000- 9,999	 $10,000 and up	TOTAL
	118.00	100.00	100.00	318.00
No	121.77	99.28	96.95	318.00
	0.12	0.01	0.10	0.22
	21.00	21.00	13.00	55.00
Chiquita	21.06	17.17	16.77	55.00
	0.00	0.85	0.85	1.70
Something other than brand	8.00	6.00	6.00	20.00
	7.66	6.24	6.10	20.00
	0.02	0.01	0.00	0.03
	10.00	1.00	6.00	17.00
Other	6.51	5.31	5.18	17.00
	1.87	3.50	0.13	5.50
	157.00	128.00	125.00	410.00
TOTALS	157.00	128.00	125.00	410.00
	2.00	4.36	1.07	7.44

TOTAL CHI-SQUARE = 7.44 WITH 6 D.F. PROB > CHISQ = 0.28

[a] See Table 42 for fruits referred to.

TABLE 44

Annual Per Capita Fresh Apple Consumption By Income Level.[a]

Per Capita Consumption (lbs)	Household Income $1,000- 4,999	 $5,000- 9,999	 $10,000 and up	TOTALS
	35.00	33.00	31.00	99.00
0 - 9	38.02	30.84	30.14	99.00
	0.24	0.15	0.02	0.42
	24.00	37.00	31.00	92.00
10 - 19	35.33	28.66	28.01	92.00
	3.64	2.43	0.32	6.39

	28.00	13.00	23.00	64.00
0 - 29	34.58	19.93	19.48	64.00
	0.48	2.41	0.63	3.52
	15.00	11.00	17.00	43.00
0 - 39	16.52	13.39	13.09	43.00
	0.14	0.43	1.17	1.73
	17.00	10.00	11.00	38.00
0 - 49	14.59	11.84	11.57	38.00
	0.40	0.28	0.03	0.71
	6.00	6.00	4.00	16.00
0 - 59	6.15	4.98	4.87	16.00
	0.00	0.21	0.16	0.37
	9.00	9.00	1.00	19.00
0 - 69	7.30	5.92	5.78	19.00
	0.40	1.61	3.96	5.96
	2.00	1.00	3.00	6.00
0 - 79	2.30	1.87	1.83	6.00
	0.04	0.40	0.75	1.20
	3.00	1.00	0.00	4.00
0 - 89	1.54	1.25	1.22	4.00
	1.39	0.05	1.22	2.66
	6.00	2.00	2.00	10.00
0 - 99	3.84	3.11	3.04	10.00
	1.21	0.40	0.36	1.97
	19.00	10.00	7.00	36.00
00 or greater	13.83	11.21	10.96	36.00
	1.94	0.13	1.43	3.50
	164.00	133.00	130.00	427.00
OTALS	164.00	133.00	130.00	427.00
	9.87	8.50	10.05	28.42

OTAL CHI-SQUARE = 28.42 WITH 20 D.F. PROB> CHISQ = 0.0995

er capita figures in this table were calculated from annual family consumption data and mily size reported by homemakers.

TABLE 45

Has Your Use of Fresh Apples for Dessert Increased, Decreased, Or Remained Constant Over The Last Ten Years?

Level of Dessert Preparation	Household Income			
	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTAL
Increased	10.00	7.00	11.00	28.0
	10.75	8.69	8.56	28.0
	0.05	0.33	0.70	1.0
Decreased	64.00	37.00	29.00	130.0
	49.91	40.36	39.74	130.0
	3.98	0.28	2.90	7.1
Remained constant	88.00	87.00	89.00	264.0
	101.35	81.95	80.70	264.0
	1.76	0.31	0.85	2.9
TOTALS	162.00	131.00	129.00	422.0
	162.00	131.00	129.00	422.0
	5.79	0.92	4.45	11.1

TOTAL CHI-SQUARE = 11.16 WITH 4 D.F. PROB > CHISQ = 0.02

TABLE 46

Has Your Use Of Fresh Apples For Applesauce Or Other Preparations Eaten With The Main Part Of The Meal Increased, Decreased, Or Remained Constant Over The Last Ten Years?

Level of Sauce Preparation	Household Income $1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
	9.00	7.00	9.00	25.00
Increased	9.60	7.76	7.64	25.00
	0.04	0.07	0.24	0.35
	60.00	30.00	23.00	113.00
Decreased	43.38	35.08	34.54	113.00
	6.37	0.74	3.86	10.96
	93.00	94.00	97.00	284.00
Remained constant	109.02	88.16	86.82	284.00
	2.36	0.39	1.19	3.94
	162.00	131.00	129.00	422.00
TOTALS	162.00	131.00	129.00	422.00
	8.76	1.20	5.29	15.25

TOTAL CHI-SQUARE = 15.25 WITH 4 D.F. PROB > CHISQ = 0.004

TABLE 47

Has Your Eating Of Fresh Apples Increased, Decreased, Or Remained Constant Over The Last Ten Years?

Level of Fresh Apple Consumption	Household Income $1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
Increased	28.00 29.56 0.08	28.00 23.90 0.70	21.00 23.54 0.27	77.00 77.00 1.06
Decreased	66.00 44.53 10.35	30.00 36.01 1.00	20.00 35.46 6.74	116.00 116.00 18.09
Remained constant	68.00 87.91 4.51	73.00 71.09 0.05	88.00 70.00 4.63	229.00 229.00 9.19
TOTALS	162.00 162.00 14.94	131.00 131.00 1.76	129.00 129.00 11.64	422.00 422.00 28.34

TOTAL CHI-SQUARE = 28.34 WITH 4 D.F. PROB > CHISQ = 0.0001

TABLE 48

Has Your Use Of Fresh Apples for Preservation Increased, Decreased, Or Remained Constant Over The Last Ten Years?

Level of Preservation	Household Income $1,000-4,999	 $5,000-9,999	 $10,000 and up	TOTALS
	7.00	6.00	2.00	15.00
Increased	5.76	4.66	4.59	15.00
	0.27	0.39	1.46	2.11
	46.00	16.00	9.00	71.00
Decreased	27.26	22.04	21.70	71.00
	12.89	1.66	7.44	21.98
	109.00	109.00	118.00	336.00
Remained constant	128.99	104.30	102.71	336.00
	3.10	0.21	2.28	5.58
	162.00	131.00	129.00	422.00
TOTALS	162.00	131.00	129.00	422.00
	16.25	2.25	11.17	29.68

TOTAL CHI-SQUARE = 29.68 WITH 4 D.F. PROB > CHISQ = 0.0001

TABLE 49

What Factors Were Responsible for The Decreases Reported Above?[a]

	Household Income			
Decrease Factors	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
Family decreased	62.00	21.00	19.00	102.00
	47.96	27.32	26.71	102.00
	4.11	1.46	2.23	7.80
Health	11.00	7.00	11.00	29.00
	13.64	7.77	7.60	29.00
	0.51	0.08	1.53	2.11
Reference to time factor	5.00	13.00	14.00	32.00
	15.05	8.57	8.38	32.00
	6.71	2.29	3.77	12.76
Decrease in general food consumption	1.00	4.00	0.00	5.00
	2.35	1.34	1.31	5.00
	0.78	5.29	1.31	7.37
TOTALS	79.00	45.00	44.00	168.00
	79.00	45.00	44.00	168.00
	12.10	9.11	8.83	30.05

TOTAL CHI-SQUARE = 30.05 WITH 6 D.F. PROB >CHISQ = 0.0001

[a] See Tables 45-48 for decreases referred to.

TABLE 50

What Factors Were Responsible For The Increases Reported Above?[a]

	Household Income			
Increase Factors	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
Increase in family size	20.00 19.42 0.02	18.00 18.17 0.00	14.00 14.41 0.01	52.00 52.00 0.03
Health	3.00 4.11 0.30	4.00 3.84 0.01	4.00 3.05 0.30	11.00 11.00 0.60
Access to apple trees	4.00 2.61 0.73	2.00 2.45 0.08	1.00 1.94 0.46	7.00 7.00 1.27
Change in tastes and preferences	4.00 4.86 0.15	5.00 4.54 0.05	4.00 3.60 0.04	13.00 13.00 0.24
TOTALS	31.00 31.00 1.20	29.00 29.00 0.14	23.00 23.00 0.81	83.00 83.00 2.14

TOTAL CHI-SQUARE = 2.14 WITH 6 D.F. PROB >CHISQ = 0.90

[a] See tables 45-48 for increases referred to.

TABLE 51

Per Cent Of Apples Purchased Fresh Used for Pies, Cakes, Or Other Cooked Desserts.

Per Cent of Apple Used for Apple Desserts and Totals	Household Income $1,000-4,999 (N=164)	 $5,000-9,999 (N=133)	 $10,000 and over (N=130)
Average	27.07	22.41	24.15
Range	5-99	5-50	5-90
Mode	25	25	25
Subtotal	58	51	65
No apple used	106	82	65
Grand total	164	133	130

TABLE 52

Per Cent Of Apples Purchased Fresh Used for Applesauce Or Other Preparations Eaten With The Main Part Of The Meal.

Per Cent of Apple Used for Applesauce and Totals	Household Income $1,000-4,999 (N=164)	$5,000-9,999 (N=133)	$10,000 and over (N=130)
Average	32.40	29.80	30.05
Range	5-80	2-99	5-75
Mode	25	25	25
Subtotal	63	56	63
No apple used	101	77	67
Grand total	164	133	130

TABLE 53

Per Cent Of Apples Purchased Fresh Used for Eating Fresh.

Per Cent of Apple Used for Apple For Eating Fresh and Totals	Household Income $1,000-4,999 (N=164)	 $5,000-9,999 (N=133)	 $10,000 and ove (N=130
Average	74.81	77.66	70.85
Range	1-100	10-100	5-100
Mode	100	100	100
Subtotal	157	128	130
No apple used	7	5	0
Grand total	164	133	130

TABLE 54

Per Cent Of Apples Purchased Fresh Used for Preservation.

Per Cent of Apple Used for Preservation and Totals	Household Income		
	$1,000-4,999 (N=164)	$5,000-9,999 (N=133)	$10,000 and over (N=130)
Average	22.79	26.50	19.12
Range	10-45	10-50	10-50
Mode	25	10	10
Subtotal	19	10	17
No apple used	145	123	113
Grand total	164	133	130

TABLE 55

When You Serve Apple Pie, It Is Usually — — — —.

	Household Income			
Pie Source	$1,000-4,999	$5,000-9,999	$10,000 and up	TOTALS
Made at home from fresh apples	82.00 82.19 0.00	69.00 66.66 0.08	63.00 65.15 0.07	214.00 214.00 0.15
Made at home from processed apples	28.00 21.89 1.70	13.00 17.75 1.27	16.00 17.35 0.11	57.00 57.00 3.08
Bought from bakery or grocery store	39.00 46.86 1.32	41.00 38.00 0.24	42.00 37.14 0.64	122.00 122.00 2.19
Never serve apple pie	15.00 13.06 0.29	10.00 10.59 0.03	9.00 10.35 0.18	34.00 34.00 0.50
TOTALS	164.00 164.00 3.31	133.00 133.00 1.63	130.00 130.00 0.99	427.00 427.00 5.92

TOTAL CHI-SQUARE = 5.92 WITH 6 D.F. PROB > CHISQ = 0.43

TABLE 56

When You Serve Applesauce, It Is Usually — — — —.

Source	Household Income $1,000- 4,999	 $5,000- 9,999	 $10,000 and up	TOTALS
Made at home	86.00	58.00	55.00	199.00
from fresh	76.43	61.98	60.59	199.00
apples	1.20	0.26	0.51	1.97
Purchased in	72.00	73.00	74.00	219.00
canned form	84.11	68.21	66.67	219.00
	1.74	0.34	0.80	2.88
Never serve	6.00	2.00	1.00	9.00
applesauce	3.46	2.80	2.74	9.00
	1.87	0.23	1.11	3.21
	164.00	133.00	130.00	427.00
TOTALS	164.00	133.00	130.00	427.00
	4.81	0.82	2.42	8.06

TOTAL CHI-SQUARE = 8.06 WITH 4 D.F. PROB > CHISQ = 0.09

APPENDIX

Survey Form

1. Have you purchased any apples for fresh consumption for your family during the past year?

   Yes ____________

   No ____________

   Don't Know ________

2. When you buy apples for fresh consumption do you usually buy red apples, yellow apples, or some of both colors?

   Red ____________

   Yellow ____________

   Some of both colors __________

3. During the year do you buy about the same amount of fresh apples each month or does the amount purchased vary from one month to another?

   Same each month __________

   Varies from month to month __________

   If the amount varies from month to month, which months do you purchase the most? ______________________________

   Why do you purchase more during these months than other months?

   ____

4. What variety of apple does your family prefer for eating fresh?

   Variety ___________

   Don't Know _______

5. How many apples would you estimate that your family consumes each year for eating as fresh apples (do not include fresh apples not eaten from hand). Record answer in pounds. ______________

6. Which fruit does your family like best for fresh consumption?

   Grapefruit __________

   Apples ____________

   Bananas ____________

   Oranges ____________

   Peaches ___________

   Grapes ____________

   Pears _____________

   Other _____________

7. When buying this fruit do you look for a specific brand name?

Yes ________ No _____ If yes, what brand __________ Why? ______

____

8. In a years time would you estimate that your family consumes more apples or more of the above fruit for fresh consumption?

More apples ____________

More of No. 6 ___________

9. Where do you usually buy apples used for fresh consumption?

Supermarket ______________

Produce or fruit market ______

Neighborhood store _________

Fruit farm ________________

Trucker __________________

Other ____________________

10. How are the apples you buy for fresh consumption usually packaged?

Packaged in clear plastic bags ____________

Packaged in over-wrapped trays ____________

Displayed and sold as loose individual apples ____________

Other ________________________ How? ________________

11. Which type of package do you prefer for the sake of convenience in buying, handling and storage for your family?

____

Why do you prefer this type of package? ________________________

12. Can you usually find apples for fresh consumption packaged in the size package you prefer for your family?

Yes __________

No ___________

If answer is No, please explain. ______________________________

____

13. What suggestions do you have for improving packaging of apples for fresh consumption to aid the housewife?

No suggestions __________

Suggestions ______________________

____

14. Do you look for a specific brand name when you buy apples for fresh consumption?

Yes __________

No __________

If yes, what brand? ______________________________

15. Which of the following characteristics do you prefer in apples purchased for fresh consumption?

[ ] soft
[ ] crisp
[ ] hard

[ ] dry
[ ] juicy

[ ] sweet
[ ] tart

[ ] mealy
[ ] fine textured

[ ] bright or deep red
[ ] more red than yellow
[ ] more yellow than red

[ ] small
[ ] medium
[ ] large

[ ] Other characteristics:
Describe: __________

____

16. In your opinion which variety of apple fits this description best?

____

17. What per cent of the apples you purchase fresh are used for:

__________ pies, cakes, or other cooked desserts.
__________ applesauce or other preparations eaten with the main part of the meal.
__________ eating fresh.
__________ preservation.

100 = Total

18. Has your use of fresh apples for __________ increased, decreased, remained about constant over the last 10 years?

__________ pies, cakes, or other cooked desserts.

__________ applesauce or other preparations eaten with the main part of the meal.

__________ eating fresh.

__________ preservation.

19. What factors were responsible for the increase reported in 18 above?

____

____

____

What factors were responsible for the decrease reported in 18 above?

____

____

____

20. In your opinion which of the following apples has the best

	A Fancy Red Delicious Produced in West Virginia	A Fancy Red Delicious Produced in the State of Washington
Flavor	__________	__________
Color	__________	__________
Size	__________	__________
Nutritional Value	__________	__________
Texture	__________	__________
Sweetness	__________	__________
Tenderness of Skin	__________	__________
Juiciness	__________	__________

21. Do you think housewives are willing to pay a higher price for Fancy Red Delicious apples produced in the state of Washington than for Fancy Red Delicious apples produced in West Virginia? __________

22. Which of the following fresh fruit would you serve for __________

	Pears	Bananas	Peaches	Apples	Oranges	Grapefruit	Grapes
Breakfast							
Lunch							
The Evening Meal							
A Sack Lunch (adult)							
A Sack Lunch (child)							

	Pears	Bananas	Peaches	Apples	Oranges	Grapefruit	Grapes
A Children's Party							
A Teenager's Party							
An Adult Party							
Child's Snack							
Teenager's Snack							
Adult's Snack							

23. How would you rate the nutritional value of processed as opposed to fresh apples?

_________ processed apples have more nutritional value than fresh apples.
_________ fresh apples have more nutritional value than processed apples.
_________ they are equally nutritious.

24. When you serve apple pie it is usually

_________ made at home from fresh apples.
_________ made at home from processed apples.
_________ bought from bakery or grocery store.
_________ never serve (apple pie).

25. When you serve applesauce it is usually

_________ made at home from fresh apples.
_________ purchased in canned form.
_________ never serve applesauce.

26. In order to make studies of this type useful, we group families by size, age, education, and other categories.
How many people live in the household? (List Below) ___________

No.	Relation	Age
1		
2		
3		
4		

5		
6		
7		
8		
9		
10		

27. In which of the following age groups are you? (read)

Under 25	
25 - 34	
35 - 44	
45 - 54	
55 + Over	

28. In which of the following educational groups are you?

Grades	Some Work	Graduated
Grade School 1 - 8		
High School 9 - 12		
College		
Graduate Work		

29. Into which of the following income groups would your household fall?

a. $1,000 to $4,999
b. $5,000 to $9,999
c. $10,000 to $14,999
d. $15,000 to $24,999
e. $25,000 and over

30. What is your husband's occupation? ______________________________

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